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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/736,921

12/16/2003

Di Wei

60246-220; 10,691

5823

26096 7590 05/14/2007  
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EXAMINER

MAYEKAR, KISHOR

ART UNIT

PAPER NUMBER

1753

MAIL DATE

DELIVERY MODE

05/14/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/736,921	<b>Applicant(s)</b> WEI ET AL.	
	<b>Examiner</b> Kishor Mayekar	<b>Art Unit</b> 1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 February 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22, 24-34, 36 and 37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-22, 24-34, 36 and 37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                            |                                                                                         |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                           | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-21, 28-30, 34, 36 and 37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The above claims now include the added limitations that the first layer is operative to react with a target substance to produce a first intermediate substance and the second layer is operative to react with the first intermediate substance to form a second intermediate substance. However, the specification fails to enable the above limitations. The specification discloses in paragraphs 11 and 32 that platinum can further oxidize the photocatalytic oxidation intermediates to carbon dioxide and water since the platinum dispersed and supported on surface of titanium dioxide reduce the recombination rate of the electron and holes. The specification fails to enable whether

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the intermediates are formed from the photocatalytic oxidation of the target substance in the airstream with the photocatalyst-containing coating present in the first layer or from the photocatalytic oxidation of another target substance in the airstream with the photocatalyst-containing coating present in the second layer.

3. Claims 1-21, 28-30, 34, 36 and 37 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for platinum can further oxidize the photocatalytic oxidation intermediates to carbon dioxide and water since the platinum dispersed and supported on surface of titanium dioxide reduce the recombination rate of the electron and holes (paragraphs 11 and 32), does not reasonably provide enablement for the same with any other Group VIII noble metal. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. The above claims recite that the system comprises the second layer is operative to react with the first intermediate substance to form a second intermediate substance. Because of the breadth of the claims, the above claimed subject matter can be interpreted as that any other Group VIII metal such as rhodium in the second layer can further oxidize the intermediate, for example. And the specification does not enabling such an interpretation.

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4. Claims 1-21, 28-30, 34, 36 and 37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The above claims now add the limitations that the first layer is operative to react with a target substance to produce a first intermediate substance, the second layer is operative to react with the first intermediate substance to form a second intermediate substance, and the third layer is operative to react with the second intermediate substance. The added limitations raise an issue of new matter(s) since there is no support for the added limitations in the specification as originally filed, specially to the latter reaction between the third layer with the second intermediate substance.

*Claim Rejections - 35 USC § 103*

5. Claims 22 and 31 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi (US 6,368,668 B1) in view of Reisfeld (US 2003/0021720 A1), for reasons as of record.

6. Claims 24-27, 32 and 33 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Reisfeld '720 in view of Kobayashi '668, for reasons as of record.

*Response to Arguments*

7. Applicant's arguments filed 28 February 2007 have been fully considered but they are not persuasive.

Applicant argues that the rejection to claims 22 and 31 fails to state any motivation or benefit that would result from the proposed modification. Since Kobayashi discloses in col. 1, lines 13-18 the application of his photocatalyst material to the purification of harmful gases and in col. 1, lines 26-33 that photocatalysts in the presence of light are known to cause oxidation of organic compounds, such as offensive odor components, and since Reisfeld shows the removing or reducing of organic pollutants from a fluid with a photocatalyst material in the presence of light is known and the application to detoxifying the air being conditioned and circulated within the building (paragraph 2), the motivation or benefit from the proposed modification would be the application of Kobayashi's photocatalytic material to Reisfeld's air purification in the enhancement of the photocatalytic oxidation of organic compounds in the airstream.

Also, Applicant argues that the rejection to claims 24-27, 32 and 33 fails to establish prima facie obviousness and to provide any motivation for selecting or using the recited coating compositions. The motivation for combining Reisfeld's teachings with that of Kobayashi would be the enhancing of the photocatalytic oxidation of organic compounds in the airstream.

*Conclusion*

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

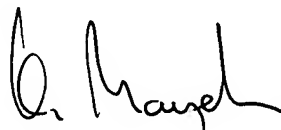
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kishor Mayekar whose telephone number is (571) 272-1339. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'K. Mayekar', is positioned above the printed name.

Kishor Mayekar  
Primary Examiner  
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